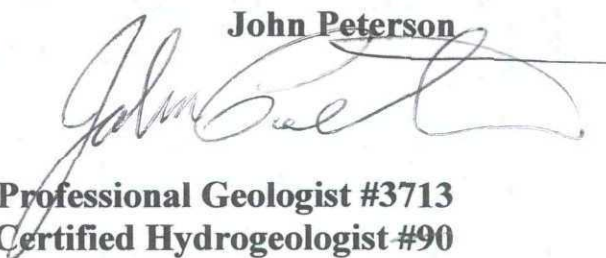


**Pump Test Plan
Top of the Pines TPM 20951
February 19, 2008**



John Peterson



**Professional Geologist #3713
Certified Hydrogeologist #90
Peterson Environmental Services
5580 La Jolla Blvd. #398
La Jolla Ca. 92037
858-454-9984
Cell 858-220-0877
Fax 858-551-7549
petersonenv@hotmail.com**

John Peterson, Peterson Environmental Services
California Registered Geologist #3713, Certified Hydrogeologist #90
5580 La Jolla Blvd. #398 La Jolla Ca. 92037

Project Description and Location

The Top of the Pines, TPM 20951 is located in Pine Valley California (Figures 1 and 2). The project is composed of 18.26 gross acres and is proposing four single family residential lots with a minimum parcel size of 4.16 gross acres. This results in an average density of 1 dwelling unit per 4.56 acres for overall project. As identified by the County Groundwater Ordinance (Section 67.703.1) one well is required to be constructed and tested to prove adequate well yield on the project. Specific direction regarding the test was provided in a memo (Bennett to Slovic, dated September 3, 2008) and is given in Appendix A.

Well Description:

As identified by Jim Bennett, County Groundwater Geologist an existing well on Parcel #1 was selected for the test. The well is located on the southeast side of the project (Figure 2 and Attachment A Tentative Parcel Map, located in pocket at the end of this report). The well was completed in August 1985 and is located at GPS location of N 32 49.292, W 116 31.996 elevation 3,864 feet. The well was drilled to 525 feet (see Appendix B for Well Completion Log, (sorry for the poor quality of the copy)) by Morrison Drilling of Campo California. The Well Completion Log reports an anticipated well yield of 127 gpm (gallons per minute). The borehole was installed with a steel casing to the total depth of 54 feet with a concrete seal.

Proposed Production Rate

The well will be pumped at 7 to 8 gallons per minute (gpm) for an 8- hour period of production. A preliminary step drawdown test was completed on the well by Tim Guishard who is a State Certified Water Treatment Plant Operator and holds a California State T-1 Certification. The well was initially pumped at 5 gpm for about 2 hours. During the initial pumping he reported a total drawdown of 3 feet. Following this initial pumping phase he pumped the well at 10 gpm for an additional 2 hours at which time the well had a total drawdown of 5 feet. This results in a specific capacity of about 2 gpm/ft of drawdown. The County Guidelines allows for a shortened pump test of 8 hours if the specific capacity of the well is equal to or greater than .5 gpm/ft dd (Section 1.0 of the Guidelines of Performing Residential Well Tests). The preliminary data provided by Mr. Guishard would indicate that

the well has an adequate specific capacity to qualify for the shortened test. However additional measurements of drawdown will be taken on the day when the well is configured for the test to confirm these measurements.

It is anticipated that the well will recover quickly given its high yield potential. Thus at this time no identified recovery period is anticipated. However recovery data will be reviewed during the recovery period to ensure that the projection of the recovery curve as plotted on the t/t' plot will project to less than .5 feet of drawdown. As necessary the recovery period will be extended to gather this information.

Pump Test Plan:

The pump test will be run according to the following conditions.

- 1) Static groundwater level will be recorded prior to production testing. The well will be set up for the test the day prior to the production test and the static water level will be taken at that time. Note that static water level was monitored on February 6, 2009 during the initial site review. Static water level was measured at 16.9 feet below top of casing which is .8 feet above surrounding ground surface. Thus static water level is approximately 16.1 feet below graded ground surface.
- 2) The well currently has an installed submersible pump and motor. The pump has a check valve installed to prevent siphoning of water when the pump is shut down. A gate valve and cumulative and instantaneous flow meter will also be installed. During the test flow will also be monitored periodically by timing the filling of a container of a known volume to confirm production rate.
- 3) Following configuration of the well with pump and motor the well will be allowed to be rested for at least a 24 hour period or which time full recovery has been documented. At that time groundwater levels will also be compared to previously collected levels to ensure that true static groundwater levels have been reached prior to beginning the pumping test.
- 4) On February 6, 2008 I met with staff personnel of the Pine Valley Mutual Water Company. I showed him the location of the pump test and asked him regarding the location of any nearby wells. He stated that no other wells are known to existing within 1,000 feet of the test well. All other homes, located to the east and the north of the test well are on district water. The closest well is another

onsite test well located about 230 feet north of the test well (see Figure 2). I have visited the well (on February 6, 2009) and the well had a static water level of 27.9 feet below TOC (top of casing). It is proposed that this well will be monitored prior to the beginning of the test and on 2 hour intervals during the test and following the production test.

- 5) The discharge will be directed via garden hoses that will extend about 150 feet to the east (down gradient) from the test well. The water will be discharged along the access driveway to the site.
- 6) During the test groundwater levels will be collected via a Global Water data logger installed in the pumping well. The data logger will be set to record water levels on a logarithmic basis (following direction contained within Section 3.1 of the *Guidelines for Performing Residential Well Tests*). Also periodic water levels will also be collected via electric line to confirm the data.
- 7) The length of the test could be extended if straight line conditions have not been encountered within the production well following consultation with the County Groundwater Geologist. Also if the specific capacity of the well falls to below .5 gpm/ft of drawdown it is accepted that a 24-hour test will be required. Such a test would likely be conducted at a later date since resources would not be on site to complete a 24-hour test.
- 8) Water samples have already been collected on the well by Tim Guishard (with the exception of TDS). The samples show that uranium, gross alpha, nitrate and total and E Coli met State Standards. Iron and manganese were significantly above secondary standards and these results will also be reported. It is proposed that a water sample for TDS will be collected at the end of the test; however additional water samples will not be collected for the other elements. Mr. Guishard is licensed within the State as a Certified Water Treatment Plant Operator. It is anticipated that Mr. Guishard will complete a water quality summary that will be reviewed and approved by me that would be included into the pump test report as the water quality section. Also it is understood that as the State Registered Geologist it will be my responsibility to review and ensure accuracy of Mr. Guishard's report.
- 9) Given the production capacity of the well it is not known the length of the recovery interval. However initial water levels will be collected via data logger and checked to ensure that recovery

will meet the requirements of no more than .5 feet of drawdown projected on the log plot of T/T'.

Test Well Analysis

The following elements will be evaluated and reported within the final Pump Test Report (following direction within the Groundwater Resources Guidelines for Determining Significance (March 19, 2007 pages 19 to 20).

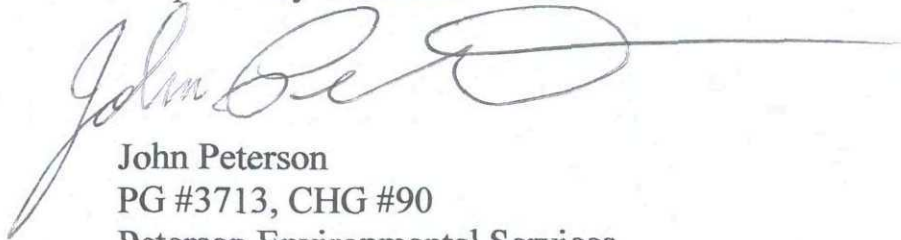
- 1) Total drawdown will be given including projected drawdown after 5 years of sustained pumping.
- 2) Specific capacity will be reported.
- 3) Residual drawdown will be given including an Excel graph showing residual drawdown on a T/T' plot.
- 4) Estimated transmissivity will be given, although storativity will not be report given that a monitoring well is not present for the test. It is not anticipated that drawdown adequate to determine storativity will be observed in the monitoring well that is located about 230 feet to the north of the test well.
- 5) Report on potential offsite and onsite well interference will be included.
- 6) Specific discussion will be given for:
 - a. Low well yield and
 - b. Offsite and onsite well interference.

Conclusion

As directed by Jim Bennett, County Groundwater Geologist, a well will be tested on TPM 20951 located in Pine Valley California. This well will be pump tested as required by the County Groundwater Ordinance to investigate groundwater yield potential of the aquifer. It is anticipated that the well will be pumped at 7 to 8 gpm for 8 hours with likely a shortened recovery interval. Although recovery water levels will be monitored long enough to prove adequate recovery as identified within the County Guidelines. Water samples will be collected at the end of the test for TDS only. The section regarding water quality analysis will be written (but reviewed by me) by Tim Guishard. It is anticipated that this test will be completed during first portion of March 2008.

Please let me know if you need any additional information regarding these tests.

Respectively Submitted

A handwritten signature in cursive script, appearing to read "John Peterson", followed by a long horizontal line extending to the right.

John Peterson
PG #3713, CHG #90
Peterson Environmental Services

Figure 1
Location Map
TPM 20951

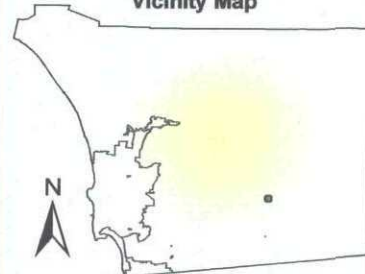
 Subject Parcel
 Roads



0 1,100 2,200 4,400 Feet

1 inch = 2,500 feet

Vicinity Map



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Plot Date: 02/17/09

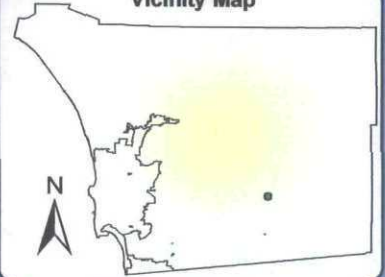
Figure 2
Well Location
TPM 20951

 Subject Parcel
 Roads

0 150 300 600 Feet

1 inch = 333 feet

Vicinity Map



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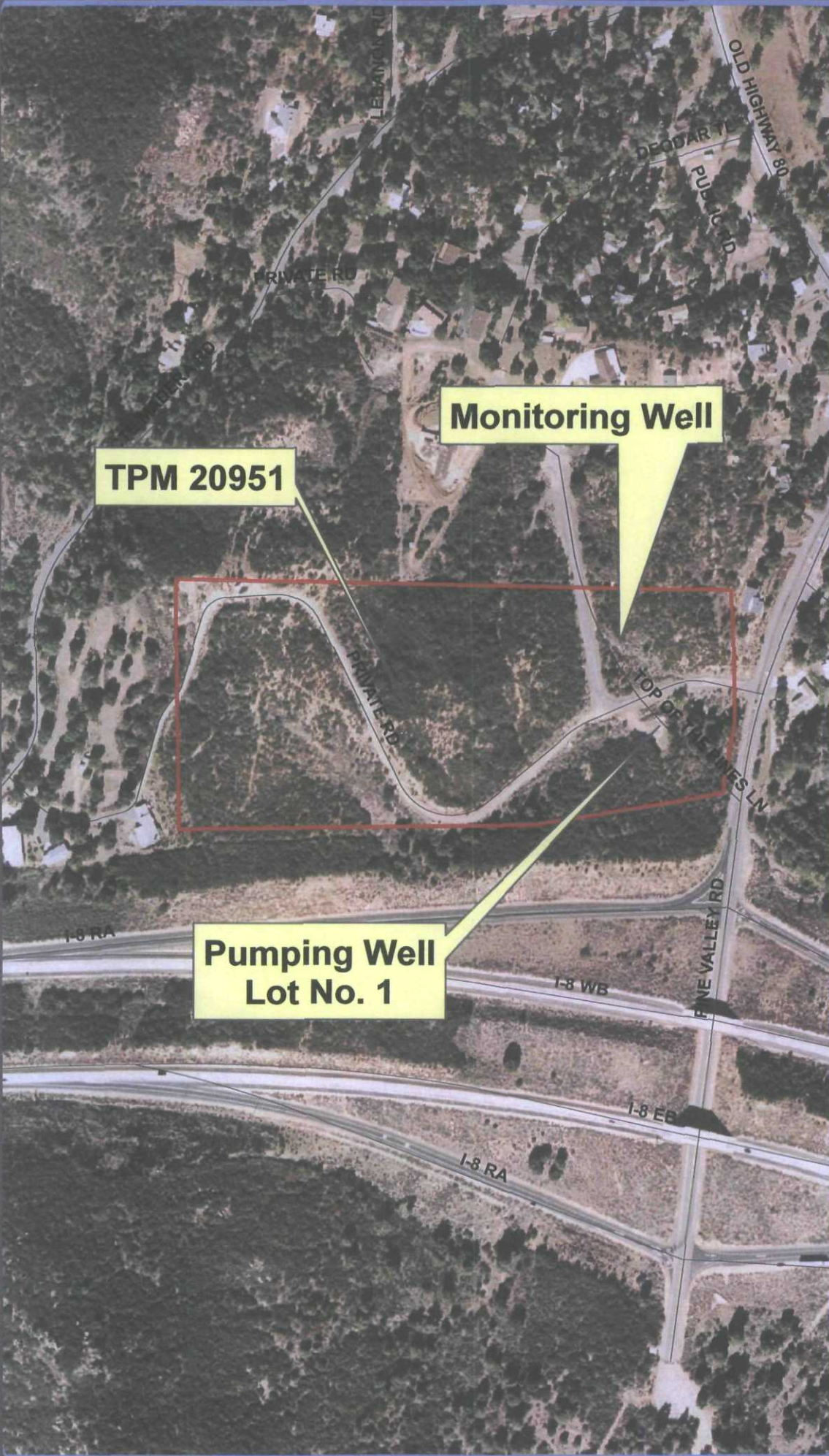
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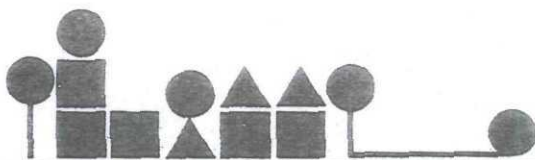
Plot Date: 02/17/09



Appendix: A

Email Bennett to Slovic

September 3, 2008



COUNTY OF SAN DIEGO • DEPARTMENT OF PLANNING AND LAND USE

TO: MARK SLOVICK, PROJECT MANAGER
FROM: JIM BENNETT, DPLU GROUNDWATER GEOLOGIST
SUBJECT: TPM 20951 TOP OF THE PINES – SCOPING REMAINDER OF
GROUNDWATER ISSUES
DATE: SEPTEMBER 3, 2008

GROUNDWATER RESOURCES

Mark, please provide the following updated scoping requirements to the applicant for groundwater. Thanks.

Cumulative Groundwater Analysis Waived: On November 21, 2005, the County issued a scoping letter which requested a cumulative groundwater analysis that evaluates basin wide groundwater use and sustainable yield. A cumulative groundwater analysis of the Pine Valley basin was conducted for a separate subdivision, TM 5318 Pine Valley Park Estates, which was deemed complete by the County on June 26, 2008. The water balance analysis provided in the report indicates that groundwater resources are adequate to meet the groundwater demand from the southern and northern sub-basins within Pine Valley when the two basins are developed to the maximum density and intensity permitted by the current General Plan. Therefore, this project, which lies within the southern sub-basin, can rely upon the analysis conducted for TM 5318. The County's requirement to conduct a cumulative groundwater analysis for this project is hereby waived.

Outstanding Groundwater Issue, Well Testing: Well testing is still required to evaluate the water resources on one of the four parcels. The Groundwater Ordinance requires one well test for all projects having between 1 and 10 lots. One of the existing production wells on Parcel 1 can be used for the well test. Any additional existing wells onsite should be used as monitoring well(s) during the well testing and if possible, any wells on nearby offsite adjacent properties (with offsite property owner(s) approval) should be monitored during the well testing.

As an initial screening of water quality at the site, the well that will be selected for well testing shall be sampled for:

- Gross alpha particles by Standard Method 7110C
- Uranium by EPA Method 908.0/Standard Method 7500-U B
- Nitrate
- Iron and Manganese
- Total and fecal coliform

- TDS (recommended)

Water samples should be collected after at least two well bore volumes have been purged from each well. Please follow standard sampling procedures as detailed in Section 4.2.1 and 4.2.2 of the Report Formats. Collect the samples in laboratory certified bottles, place samples in a cooler with ice which must be maintained at a temperature of 4 degrees C, and ensure that samples are analyzed within laboratory holding times. It should be noted on the chain-of-custody that the samples are for drinking water.

Well Test Plan: Prior to performing any well test, a well test plan must be prepared and submitted to the County Groundwater Geologist for approval. The well test plan and final well test report must be prepared by a California Professional Geologist. Additionally, all field work associated must be under the direct supervision of the California Professional Geologist. Submittal and approval of this plan will ensure that the well tests are conducted in compliance with the necessary requirements for the project. For items to include in the plan, please refer to Section 1.0, Well Test Plan in Attachment A of the Report Format Guidelines and Content Requirements for Groundwater Resources.

Well Test Report: The report shall follow the items outlined in the Report Formats. For Section 2, Existing Conditions, include only a brief description of the existing conditions at and near the project site. For Section 3, low well yield and offsite well interference are necessary to be included in the analysis.

Please contact Jim Bennett, County Groundwater Geologist, at 858-694-3820 if you have any questions regarding these comments.

Appendix: B

Well Completion Log

Jul-07-2008 09:16pm From-

T-580 P.005/005 F-451

County of San Diego

FIRST CARBON COPY

DEPARTMENT OF HEALTH SERVICES
1700 PACIFIC HIGHWAY, SAN DIEGO, CA 92161

WATER WELL DRILLERS REPORT

(INSERT UNDER ORIGINAL PAGE WATER CODE SEC. 13752)

Well No.

Owner Well No.

(1) OWNER: Name Renay MaxwellAddress 2675 Carta MadritzaCity Escondido, CA Zip 92026

(2) LOCATION OF WELL (See instructions)

County San Diego Owner's Well Number 13-21

Well adjacent to corner from above

Location Range Section 30-5

Distance from street, curb, railroad, fence, etc.

(12) WELL LOG: Test made 5-25-85 Depth of completed well 525 ft. from 1 to 525 feet. (Describe in detail purpose, flow, etc.)0-15501113-21 Decompose fracture30-5 Fracture with water, 30-5-2130-5 Fracture with water, 30-5-2130-5 Fracture with water, 30-5-21243-278 Fracture with water, 30-5-21278-312 Fracture with water, 30-5-21312-323 Fracture with water, 30-5-21323-352 Fracture with water, 30-5-21352-410 Fracture with water, 30-5-21410-525 granite with water, 30-5-21**DEPARTMENT USE ONLY**Permit No. 17026Date 5/20/85City EscondidoCounty San DiegoOwner Renay MaxwellAddress 2675 Carta MadritzaCity Escondido Zip 92026County San DiegoOwner Renay MaxwellAddress 2675 Carta MadritzaCity Escondido Zip 92026County San DiegoOwner Renay MaxwellAddress 2675 Carta MadritzaCity Escondido Zip 92026County San DiegoOwner Renay MaxwellAddress 2675 Carta MadritzaCity Escondido Zip 92026County San DiegoOwner Renay MaxwellAddress 2675 Carta MadritzaCity Escondido Zip 92026County San DiegoOwner Renay MaxwellAddress 2675 Carta MadritzaCity Escondido Zip 92026County San DiegoOwner Renay MaxwellAddress 2675 Carta MadritzaCity Escondido Zip 92026County San DiegoOwner Renay MaxwellAddress 2675 Carta MadritzaCity Escondido Zip 92026County San DiegoOwner Renay MaxwellAddress 2675 Carta MadritzaCity Escondido Zip 92026County San DiegoOwner Renay MaxwellAddress 2675 Carta MadritzaCity Escondido Zip 92026County San DiegoOwner Renay MaxwellAddress 2675 Carta MadritzaCity Escondido Zip 92026County San DiegoOwner Renay Maxwell**(3) TYPE OF WORK:**New Well ☐ Deepening ☐Reconstruction ☐Refracturing ☐Horizontal Well ☐Description ☐ (Describe construction materials and procedures in item (2))**(4) PROPOSED USE:**Domestic ☐Irrigation ☐Industrial ☐Test Well ☐Stock ☐Municipal ☐Other ☐

(5) Screen(s):

Material ☐ Screen ☐Size ☐ No. ☐ Size ☐Screen ☐ No. ☐ Size ☐Work started 8-10-85 at 8:00 AM

Well Drillers Statement: I hereby declare under penalty of perjury that the information provided in this report is true. This water well was installed in accordance with San Diego County Code and State of California Department of Water Resources, Bulletin No. 16.

SIGNED Bob MorrisonNAME Morrison DrillingAddress 2266 Lake Mead Dr.City Escondido Zip 92026License No. 22450 Date of this report 8-1-85**WIS-107-732 (8) CONFIDENTIAL - NOT FOR PUBLIC USE - WATER CODE SEC. 13752**

LAND DIVISION STATEMENT

I FURTHER CERTIFY THAT I WILL NOT, BY THIS APPLICATION, CREATE OR CAUSE TO BE CREATED, OR WILL NOT HAVE PARTICIPATED IN THE CREATION OF MORE THAN FOUR PARCELS ON CONTIGUOUS PROPERTY UNLESS SUCH CONTIGUOUS PARCELS WERE CREATED BY MAJOR SUBDIVISION. FOR PURPOSES OF THIS CERTIFICATION, THE TERM "PARTICIPATED" MEANS HAVING COOPERATED WITH OR ACTED IN A PLANNING, COORDINATING OR DECISION-MAKING CAPACITY IN ANY FORMAL OR INFORMAL ASSOCIATION OR PARTNERSHIP FOR THE PURPOSE OF DIVIDING REAL

I CERTIFY UNDER PENALTY OF PERJURY THAT THE FOREGOING IS TRUE AND CORRECT.

NAME ONE PAC COMPANY
A NEVADA CORPORATION

ADDRESS 2727 N. CENTRAL AVENUE

PHOENIX, AZ. 85004

TELEPHONE (602) 263-6502

NOTES

1. COMPLETE TAX ASSESSOR'S NUMBER IS: 410-030-17
2. ABBREVIATED LEGAL DESCRIPTION OF THE LAND SHOWN ON THE TENTATIVE PARCEL MAP:
POR. SE 1/4 OF SW 1/4 AND SW 1/4 OF SE 1/4, SEC 35, T 15 S, R 4 E
3. COMMUNITY PLAN/REGIONAL CATEGORY: 1/CT
4. COMMUNITY/SUBREGIONAL PLAN AREA: CENTRAL MOUNTAIN
5. LAND USE DESIGNATION(S): RR.25
6. EXISTING ZONING:
7. ASSOCIATED PERMITS: NONE
8. STATUS OF EXISTING LEGAL ACCESS TO SUBJECT PROPERTY FROM A PUBLICLY MAINTAINED ROAD, (I.E., RECORDED EASEMENT, UNRECORDED EASEMENT - IDENTIFY AND SPECIFY WIDTH.): PINE VALLEY ROAD (44')
9. WATER SOURCE/DISTRICT: WELLS:
11. FIRE DISTRICT: SEPTIC:
12. SCHOOL DISTRICT: PINE VALLEY FIRE PROTECTION DISTRICT
MOUNTAIN EMPIRE ELEMENTARY SCHOOL DISTRICT
MOUNTAIN EMPIRE JUNIOR AND SENIOR HIGH SCHOOL DISTRICT
13. SOLAR STATEMENT : THIS IS A SOLAR SUBDIVISION AS REQUIRED BY SECTION B1. 401(N), ORDINANCE. ALL LOTS HAVE AT LEAST 100 SQ. FT. OF UNOBSTRUCTED SUNLIGHT ON THE BUILDABLE PORTION OF THE LOT.
14. SOURCE OF TOPOGRAPHY: AERIAL TOPOGRAPHY DATED MARCH 24, 2004, PROVIDED BY DAVID J. MAC ARTHUR RCE 12502
15. TAX RATE AREA:
16. GENERAL PLAN: GP-1



ALLEN R. A. TURNER LS 7844
KAPPA SURVEYING, INC.
8707 LA MESA BOULEVARD
LA MESA, CALIFORNIA 91941
TELEPHONE (619) 465-8948

USE REGULATIONS		RR. 25
DEVELOPMENT REGULATION	ANIMAL REGS.	J
	DENSITY	0.25
	LOT SIZE	4AC
	BUILDING TYPE	C
	MAX. FLOOR AREA	-
	FLOOR AREA RATIO	-
	HEIGHT	G
	COVERAGE	-
SPECIAL AREA REGS.	SETBACK	C
	OPEN SPACE	-
		-